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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,922	04/15/2004	Ching-Pang Lee	GE139224	7353
29827	7590	08/31/2005	EXAMINER	
FRANCIS L. CONTE, ESQ. 6 PURITAN AVENUE SWAMPSCOTT, MA 01907			WIEHE, NATHANIEL EDWARD	
			ART UNIT	PAPER NUMBER
			3745	
DATE MAILED: 08/31/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

TAK

Office Action Summary**Application No.**

10/824,922

Applicant(s)

LEE ET AL.

Examiner

Nathan Wiehe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>04152004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 15 April 2004 is noted. The submission is in compliance with the provisions of 37 CFR 1.97 and 1.98. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

2. Claim 11 is objected to because it includes reference characters which are not enclosed within parentheses. Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).
3. It is suggested that the applicant remove "12" from claim 11, since it is the only occurrence of a reference numeral appearing in the claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hall (4,859,147). Hall discloses a gas turbine airfoil (10) including opposite pressure and suction sides (18,16) meeting at leading and trailing edges and extending

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longitudinally from root to tip (see figure 1). Hall's airfoil also includes an outwardly convex nose bridge joined to a thermally insulating shield (14) defining a bridge channel (28) there between and a plurality of flow channels (20) for blade cooling behind the nose bridge. Hall's also discloses that bridge channel (28) has a common inlet (24) and laterally opposite slot outlets (40). Hall further discloses a perforate nose bridge forming impingement cooling holes (26) and a perforate shield forming film cooling holes (30).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being obvious over Lee (5,370,499) in view of Hall (4,853,147). Lee discloses a gas turbine airfoil (12) including pressure and suction sides (14,16) joined at leading and trailing edges (18,20) and extending longitudinally from root to tip (see figure 1). Lee's airfoil includes inlet channels (36), which terminate in corresponding arrays of pins arranged in a two dimensional mesh (50). Lee's third mesh is disposed on the pressure side (14) and the fourth mesh bridges the pressure (14) and suction (16) sides aft of the third mesh and terminates before trailing edge (20). Lee further discloses a two dimensional mesh used in outlet channels extending from the leading edge (18) aft along the pressure and suction sides (14,16), but Lee does not disclose the use of a nose bridge and shield. Hall discloses a gas turbine airfoil (10) that incorporates an outwardly convex nose

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bridge and integrally joined complementary shield (14) forming a bridge channel (28) therebetween. Hall's bridge channel includes a common inlet (24) and laterally opposite outlets (40) along the pressure and suction sides (18,16). Hall's nose bridge and shield (14) also includes impingement cooling holes (26) and film cooling holes (30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the airfoil of Lee by including a nose bridge and shield, as taught by Hall, with two dimensional mesh outlet channels since "the mesh arrangement of cooling holes is ideal for any film cooling hole application" (Lee column 3, lines 8-9) in order to provide localized impingement cooling of the leading edge.

Prior Art

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patent issued to Beeck discloses a turbine blade including an integrally joined thermal shield.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Wiehe whose telephone number is (571)272-8648. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Nathan Wiehe
Examiner
Art Unit 3745



Rinaldi I. Rada
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Group 3700